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March 2010

Online at <https://mpra.ub.uni-muenchen.de/22680/>

MPRA Paper No. 22680, posted 17 May 2010 13:09 UTC

The Impact of Marine Park Gazettement to Local Community Sustainable Livelihoods: A Case Study of Redang and Tioman Islands

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ABSTRACT

In order to protect and conserve the threatened and endangered marine life, the government has gazetted a total of 40 islands as marine parks. With the gazettelement, all activities that disrupt the stability of marine's eco-system are prohibited. These prohibited activities include fishing, the locals' main source of income. Thus, what about the locals' livelihoods post- gazettelement? This research is to analyze the livelihood sustainability of the locals at the Pulau Tioman Marine Park (TIMP) and Pulau Redang Marine Park (PRMP). The analysis on livelihood sustainability is based on the locals' perceptions after the islands' gazettelement as marine parks. The five standard of living/living standard indicators which are human, physical, natural/environment, social, finance as well as threats/uncertainties towards socio-economic changes will be analysed in this research. The research results show that in general, the RIMP and TIMP's communities' livelihoods are satisfactory in terms of human, physical and social assets; but are still lacking in terms of the financial and natural/environment assets. The education element also needs to be addressed as there are still school dropouts among these islands' communities' children. Nonetheless, the locals are still safe from socio-economic threats/uncertainties and disease outbreaks/disasters. In comparing the RIMP and TIMP, it is found that the TIMP's community has better sustainable livelihood than that of the RIMP's locals.

Keywords: Sustainable livelihood, Pulau Tioman Marine Park, Pulau Redang Marine Park and Sustainability Indicators

I. Introduction

Marine Park is a protected area of the sea that is zoned 2 nautical miles measured from the low tide point. It is surrounded by islands that are gazetted and zoned as coral reefs sanctuary. In Malaysia, the gazettement of marine parks started in 1994 under the Fisheries Act 1985, after a review of the Fisheries Act 1963. A total of 40 islands have been gazetted as marine parks and are under the management of five marine parks namely, Pulau Tioman Marine Park, Pulau Redang Marine Park, Pulau Payar Marine Park, Mersing Marine Park and Labuan Marine Park. (Abdul Khalil Abdul Karim 2003).

The main purpose of establishing marine parks is to conserve the growing number of endangered marine life from extinction. In order to prevent the marine biodiversity from extinction, regulations/laws are necessary as to protect, conserve and manage the marine parks' surroundings. Moreover, all activities that may threaten this biodiversity are strongly prohibited. Thus, as a result of the marine parks' gazettement, all activities that may threaten the marine life, inclusive fishery activities which are the locals' main source of income are also prohibited. Nonetheless, other activities that do not disrupt/upset marine life are allowed such as tourism, research and education.

The development of marine parks as tourist destinations is given the much needed boost due to their richness in flora and faunas which will stimulate the number of tourist arrivals. The tourists' changing appetite toward ecotourism contributes to the increased in demand (Yap and Noor Azlin, 1992). This development in tourism industry has effectively effect the TIMP and RIMP; and now they are among the main destinations for scuba, snorkelling and diving activities.

Researchers are also focusing on marine parks' marine biodiversity and the significance of coral reefs. These researches main purpose is mainly to conserve marine parks from resources extinction that may cause pollution and others (Sweatman 1997; Yeo 1998 and Kassim 2005). Besides that, marine parks are also becoming the centre for researches that are related to the development of sustainable recreational/tourism activities, community research and tourism industry impact studies (Redzuan 1992; Redzuan 1993; Abdul Khalil 2003; Yahaya 2003; Jamal 1999; Norlida 2003; Rosli, et al, 2008 and Redzuan 2009).

Even though there have been numerous researches conducted in relation to marine parks, they are never enough. Thus, more researches must be undertaken in order to sustain the marine parks' flora, fauna and the communities residing within them. This is the reason on why this research is undertaken.

In general, this research is to analyze the effects/impacts of the Tioman Island Marine Park (TIMP) and Redang Island Marine Park's (RIMP) gazettement as marine parks to the livelihoods of these islands' communities. The five standard of living indicators which are human assets, physicals, naturals/environment, financial and social as well as the threats/uncertainties faced by the communities towards changes in socio-economic will be evaluated in this research.

Discussion of this paper will be in the following sequence: II) Theoretical framework and literature reviews, III) Methodology, IV) Empirical analysis; and V) Conclusion and Policy Implications.

II. Theoretical framework and Literature Review

Based on past researches, the five indicators namely human asset, social assets, natural/environmental assets, physical assets and financial assets are frequently used as indicators in the sustainable livelihoods researches. The elements analyzed in each asset are as per shown in Table 1.

Table 1 : Standard of Living Indicators

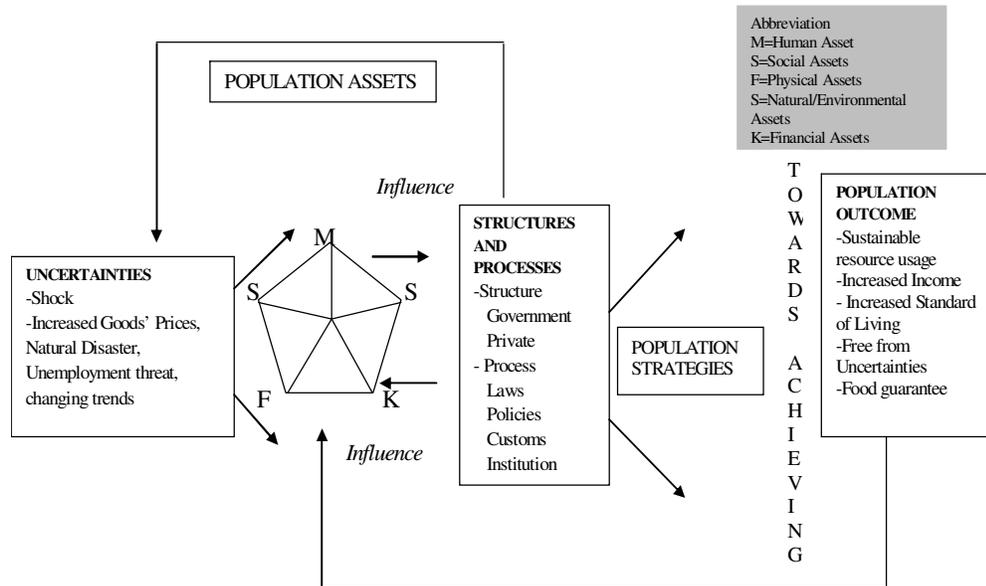
Indicators	Elements
Human Asset	Education, training, work experiences, knowledge, skills/expertise
Social Assets	Family relationship/rapport, community relationship
Natural/Environmental Assets	Land, water source, forest products, biodiversity
Physical Assets	Transportation, road infrastructure, technology
Financial Assets	Savings, credit and loans

Source: Ireland et al (2005)

These assets will be utilized through the local communities' effort and energy in order to generate income for their livelihoods. However, each individual may faces problem in utilizing the assets own (i.e.: in possession of human asset in terms of skills; physical asset: tools; financial assets and natural/environmental assets: savings and natural resources) due to obstacles that may hamper one's ability in generating income.

If these obstacles are coped/ dealt with, the community may succeed in achieving livelihood sustainability, but if otherwise, it might worsen the community's livelihood. These obstacles are the uncertainties aspect that influences a community's level of livelihood sustainability. The examples of uncertainties are natural disasters and disease outbreaks (Malleret & Simbua, 2004 and Ireland et al, 2004). The framework of sustainability concept discussed above is as depicted in Figure 1 (Allison and Horemans, 2006).

Figure 1: Framework of Sustainable Livelihood Concept



Source :Allison dan Horemans (2006)

In reference to Figure 1, the existence of policies, institutions and processes; and the extent to which they influence the community’s ability to own assets will subsequently impact their livelihoods sustainability. These three items are also found to be associated with the uncertainties aspect that may threaten the community’s sustainability. Moreover, they are also associated with the capability/ability in coming up with strategies to achieve one’s life’s goals (for example increased income, more charitable, free or able to cope with life’s threat/uncertainties, enough food, increased empowerment and social inclusion).

The framework discussed above has been widely used in islands communities’ sustainable livelihood related researches such as researches that are conducted by UK Government’s Department (2003), Harrison (2005), Claire (2004), Bruce et. al (2007), Bennett (2005), Teresa (2008), Cinner (2010). This research will also adopt all the five indicators discussed above and analyze the resilience of the RIMP and TIMP communities in coping with threats/uncertainties.

III. Methodology and Research Location

The primary method used in this research is by conducting survey. The survey is divided into seven sub-sections of which five sub-sections are related to the main indicators discussed above. The other two sub-sections are on threats/uncertainties and respondents’ communities’ background/profile. A total of 226 respondents were randomly selected in this survey which was conducted at a few villages at the TIMP and RIMP. The information obtain is analyzed using the (SPSS) *Statistical Package for the Social Science* programme, please refer Table 2. The analysis employed in this research is the frequency distribution analysis. This analysis is conducted on the

respondents' responses/perceptions in regard to the said indicators and the threat/uncertainties. We also used the distribution of mean analysis method. Data from libraries and primary data from the Department of Marine Parks are also used in this research.

Table 2 : Research Location at the TIMP and RIMP

Location	Village	Number of Respondents	Percentage
TIMP	Kg. Salang	12	11.3
	Kg. Air Batang	35	33.0
	Kg. Tekek	36	34.0
	Kg. Paya	3	2.8
	Kg. Genting	9	8.5
	Kg. Mukut	6	5.7
	Kg. Juara	5	4.7
RIMP	Kg. Perhentian Kecil	56	50.0
	Kg. Redang	60	46.7
	Lain-lain	4	3.3
Total		226	

Source: Survey 2009

IV. Empirical Studies Result

This discussion is divided into seven sections which begin with the respondents' profile, followed by discussion on the five main indicators (human asset, social assets, environment/natural assets, physical assets and financial assets); and subsequently on the threat/uncertainties aspect in order to evaluate the communities' sustainable livelihoods at the TIMP and RIMP.

a) Respondents' Profile

Majority of the respondents are male for both the TIMP and RIMP with 96.2 percent and 92.5 percent respectively. Most of them are the main household figures and only 14.2 percent of the respondents at the TIMP are single and 5 percent for the RIMP. The respondents' ages at the TIMP and RIMP are in the range of 20 to 80 years old. Overall, the respondents from these two marine parks are Malays and Muslims except at the RIMP whereby 0.9 percent of the respondents are Chinese. The respondents at the TIMP have an average of 1 to 4 children as compared to the RIMP with 5 to 9 children, please refer Table 3. Majority of the respondents are the natives of these two marine parks, Tioman Island (78.3 percent) and Redang Island (70.8 percent).

Table 3 : Number of Respondents' Children (%)

No. of Children	TIMP	RIMP
1 – 4	46.2	37.5
5 – 9	36.7	50.0
10 – 14	2.8	8.4
No children	14.1	4.2

b) Sustainable Livelihood Indicators

Human Asset

In reference to human asset, the aspects that are considered in this research are the respondents and their children's education level, employment and health. Table 4 reports the education level of the respondents for both the TIMP and RIMP communities.

Table 4 : Education Level (%)

Education Level	TIMP	RIMP
Respondents' Education Level		
Primary School	39.6	32.5
Secondary School	51.9	56.7
Diploma/Degree	5.7	1.7
Not schooling	2.8	9.2
Complete education before Form 5 (Children)		
Yes	18.9	20.8
No	81.1	79.2
Post-Diploma education (Children)		
Yes	19.8	11.7
No	80.2	88.3

Source: Survey 2009

The research reveals that majority of the respondents from both islands only have secondary school education level, i.e. TIMP (51.9 percent) and RIMP (56.7 percent). This is followed by primary school education level which is in the range of 30-40 percent. The TIMP and RIMP's respondents who are diploma/degree holders are 5.7 and 1.7 percent respectively. Nonetheless, 9.2 percent of the respondents at RIMP do not receive any education as compared to only 2.8 percent at TIMP.

A high percentage of 20.8 of the respondents' children at the RIMP are secondary school dropouts as compared to 18.9 percent at the TIMP. Meanwhile, 19.8 percent of the TIMP respondents report that their children are diploma/degree holders as compared to only 11.7 percent at the RIMP. These figures indicate improvement as the respondents themselves (pre-gazettement) have smaller percentages (RIMP: 1.7 percent; TIMP: 5.7 percent). This proves that both communities' education level has improved based on the vast difference in percentages of diploma/degree holders between the respondents and their children.

In terms of employment, the islands' communities have various employment options since the marine parks' gazettement. This is because, since the gazettement, tourism activities have been booming and this development has opened up many employment opportunities to the locals. Before the marine parks' gazettement, most of the locals (90 percent) are fishermen (Yahaya Ibrahim 2007); currently the TIMP and RIMP have reduced number of fishermen at 6.6 percent and 34.2 percent respectively. As for

others, they are involved in other sectors such as tourism, private and public sectors, retailers/traders and farmers as per Table 5.

Table 5: Locals' Type of Employment (%)

Type of Employment	TIMP	RIMP
Housewife	2.8	3.3
Fisherman	6.6	34.2
Retailers/Traders	12.2	1.7
Tourist boat operator	11.3	9.2
Tourist guide	1.9	1.7
Public servant	7.5	3.3
Private sector	22.6	20.8
Divers/scuba diving operator	3.8	1.7
Pensioners	0.9	3.3
Unemployed	0.9	0.8
Others	11.3	20.0

Source: Survey 2009

Table 6: Locals' Health Level (%)

Item	TIMP	RIMP
Health check done periodically		
Yes	70.8	63.3
No	29.2	35.0
Suffering from any illness		
Yes	25.5	21.7
No	74.5	76.7

Source: Survey 2009

Table 6 shows the respondents' health. Majority of the respondents of both islands report that they do not suffer from any illness (TIMP: 29.9 percent; RIMP: 35 percent), even though most of them do not have any regular periodic health check up done. This shows that in general, both the islands' communities' health is satisfactory after the marine parks' gazettelement. Survey also finds that majority of respondents who report having illnesses are those who suffer from health problems which are common among the elders.

Social Assets

Among the elements of social assets are the stature and relationship in the community; and also their involvement in politics and associations/societies. In the research done, it is found that respondents' relationships with the member of the communities are very close. For example, in coping with health, financial and emotional problems; friends are the concern ones at both marine parks (50 to 80 percent). Meanwhile, neighbours come in second with 20 to 50 percent for respondents at the TIMP and RIMP in regard to above mentioned problems. There is also good rapport between the respondents and their elected representatives and community leaders, but in small percentage. Please refer Table 7.

Table 7: Member of Community who are concern on respondents (%)

Member Of Community	Problems					
	Health		Finance		Emotion	
	TIMP	RIMP	TIMP	RIMP	TIMP	RIMP
Friend	79.2	70.0	53.8	54.2	63.2	56.7
Neighbours	43.4	51.7	18.9	29.2	26.4	30.0
Elected Representative	8.5	15.0	4.7	15.0	2.8	10.0
Community Leader	14.2	19.2	3.8	13.3	5.7	8.3

The research finds that quite a number of respondents have memberships in associations/societies. Table 8 shows that 45.3 percent of the respondents at the TIMP and 36.7 percent of the respondents at the RIMP are actively involved in associations/societies even though they are busy with their daily life.

Table 8: Membership in Associations/Societies (%)

	TIMP	RIMP
Yes	45.3	36.7
No	54.7	61.7

Source: Survey 2009

Environmental Assets

This research takes into account the ownership status and sales of land among the respondents in accessing the natural/environmental assets. Majority of the respondents have no land ownership at both marine parks. As shown in Table 9, only 39.6 percent own their land at the TIMP and another 10 percent own their land at the RIMP. This shows that land ownership is low due to limited land and no opportunity to own land as the current land owners are not selling. Moreover most land is government owned.

However, the most important aspect that we want to find out in these natural/environmental assets is the land sales after the marine parks' gazettelement. It is found that after the marine parks' gazettelement, there are not many changes in land ownership as only 16.6 percent and 0.9 percent of the respondents at the RIMP and TIMP respectively, sell their land.

Table 9: Land Ownership and Sales (%)

	TIMP	RIMP
Land ownership		
Yes	39.6	10.0
No	60.4	90.0
Land sales		
Yes	0.9	16.6
No	99.1	83.0

Source: Survey 2009

Thus, it can be concluded that the locals' assets at both the islands (in terms of land ownership) are still intact after the marine parks' gazettelement especially at the TIMP.

Physical Assets

In terms of physical assets, the gazettelement of the marine parks does bring in positive changes. This can be proven by the means/averages shown by Table 10, whereby most physical assets at the TIMP and RIMP are approaching 1¹.

Table 10: Respondents' Perceptions Towards Infrastructure after gazettelement (%)

Infrastructure	Better (1)		No change (2)		Worsen (3)		Not Applicable(4)		Average	
	T	R	T	R	T	R	T	R	T	R
Water supply	88.7	90.8	10.4	5.8	0.9	2.5	-	0.8	1.12	1.13
Electricity	74.5	93.3	24.4	5.8	0.9	0.8	-	-	1.26	1.08
Roads	89.6	55.0	3.8	4.2	-	0.8	6.6	40.0	1.24	2.26
Public Telephone	50.0	40.3	1.9	8.4	43.4	12.6	4.7	38.7	2.03	2.50
Public toilets	30.2	44.1	37.7	5.9	8.5	0.8	23.6	49.2	2.25	2.55
Transportation	37.7	59.2	38.7	2.5	18.9	2.5	4.7	35.8	1.91	2.15
Hospital/clinic	87.7	93.3	-	2.5	1.9	0.8	10.4	2.5	1.35	1.12
School	73.6	96.7	-	-	-	2.5	26.4	0.8	1.80	1.06
Police station	30.2	94.1	38.7	2.5	-	3.4	31.1	-	2.32	1.09
Fire station	-	17.8	1.9	-	12.3	-	85.8	82.2	3.84	3.47
Grocery stores/sundry shops	94.3	90.0	0.9	6.7	-	1.7	4.7	1.7	1.15	1.15
Post Office	7.5	48.3	19.8	4.2	4.7	3.4	67.9	44.1	3.33	2.43
Sure	59.4	95.8	40.6	0.8	-	-	-	3.3	1.41	1.10
Jetty	81.1	95.8	17.0	2.5	0.9	1.7	0.9	-	1.22	1.06
Community Hall	65.1	88.3	22.6	5.0	-	0.8	12.3	5.8	1.59	1.24
Cyber cafe	60.4	11.7	25.5	0.8	-	0.8	14.2	86.7	1.68	3.63
Overall Amenities	81.1	61.3	17.9	3.4	-	-	0.9	35.3	1.21	2.09

Source: Survey 2009
T = TIMP, R = RIMP

In reference to Table 10, majority of the respondents at the TIMP agree that infrastructures such as water supply, electricity, roads, transportation, hospitals/clinics, schools, grocery stores/sundry shops, prayer room/surau, jetty, community halls and cyber cafe have improved after the gazettelement with average reading in the range of 1-1.9. The said amenities have also improved at the RIMP after the gazettelement with average reading in the range of 1-1.2 except for the road and transportation which do not register any changes (average in the range of 2.15-2.26). As for cyber cafes, their services are deteriorating or approaching not applicable (average 3.63). This is because such services or facilities are insufficient at the RIMP. Police station however, has improved at the RIMP as compared to the TIMP. Fire stations are deteriorating at both islands and post office is worsening at the TIMP.

¹ The mean/average with the value of 1 indicate that the infrastructure is improving, 2: assume no changes, 3: worsen/deteriorating, and 4: not applicable

In general, it can be concluded that infrastructures at the TIMP have improved with 81.1 percent of the respondents agree as compared to only 61.3 percent at the RIMP. The overall average recorded at the TIMP is 1.21 which is improving, whilst the average at the RIMP is 2.09 which is no change.

Financial Assets

In terms of financial indicator, the elements evaluated are household income, loan/borrowing contract, loan/borrowing settlement and savings.

Based on Table 11, 32.6 percent of the respondents at the RIMP earn monthly income in the range of RM441 to RM750 as compared to only 14.4 percent of the respondents at the TIMP. As for household income less than RM440 per month, the respondents at the RIMP and TIMP have the percentages of 6.7 and 8.4 respectively. Thus, we can observe that there locals who are poor² with a handful may be classified under hardcore poverty³ at the RIMP and TIMP.

Table 11: Monthly Gross Income for overall working household
(%)

Income	TIMP	RIMP
0 – 440	8.4	6.7
441 -750	14.2	32.6
751 – 1500	39.5	38.2
1501 – 2000	11.2	3.3
2001 – 5000	16.7	6.7
5001 – 10000	3.7	0.8
10001 – 15000	2.8	0.8
15000 and above	2.7	-
Confidential	-	10.8

Source: Survey 2009

Nonetheless, 39.5 percent of the TIMP’s respondents and 38.2 percent of the RIMP’s respondents earn household income in the range of RM751-RM1,500, whilst 11.2 percent of the TIMP’s respondents and 3.3 percent of the RIMP’s respondents earn household income in the range of RM1,501-RM2,000. These percentages show that monthly household income for these marine parks’ locals is still low⁴ especially for the RIMP’s locals. As for household income that is in the range of RM2,001-RM5,000; the respondents at the TIMP recorded 16.7 percent and the RIMP recorded 6.7 percent. Meanwhile, as for monthly household income that exceeds RM5,000 ; the RIMP and TIMP’s locals record percentages of 1.6 and 9.2 respectively.

As a conclusion, based on monthly household income as shown in Table 11, most of the respondents lead simple life. Only a handful of the locals live in luxury with monthly income exceeding RM5,000 per month. On the average, the locals’ average monthly income at the RIMP is only RM1,211.2 as compared to RM2,961 for the TIMP’s locals.

² Income below RM750 is classified as poor (Source: EPU, 2007)

³ Income below RM440 is classified as hardcore poverty (Source: EPU, 2007)

⁴ Income below RM2,000 is classified as low income (Source: EPU, 2007)

As for Table 12, it shows the estimated total savings for the respondents. Majority of the respondents at both marine parks, the TIMP and RIMP, have savings in the range of RM1,001 to RM5,000 with 23.5 percent and 26.7 percent respectively. As for savings exceeding RM5,000, the respondents at the TIMP do better as compared to the RIMP's respondents at 59 percent and 12.3 percent, respectively. This shows that respondents at the TIMP have higher income and savings than those at the RIMP.

Table 12: Respondents' Savings (%)

Savings	TIMP	RIMP
0 – 100	0.9	1.6
101 – 1000	12.1	15.4
1001 – 5000	23.5	26.7
5001 – 10000	16.9	7.4
10001 – 50001	15.8	3.3
50001 and above	2.8	1.6
Not disclosing	27.4	43.3

Source: Survey 2009

As for Table 13, majority of the respondents from the TIMP and RIMP are not tied to any loans/borrowings. Only a handful of the locals have difficulty in paying back their loans/borrowings with 6.6 percent for the TIMP and 3.3 percent for the RIMP.

Table 13: Respondents who have loans/borrowings and difficulty in paying back (%)

	Tioman	Redang
Respondents tied to loans/borrowings		
Yes	22.6	12.5
No	77.4	85.0
Not applicable	-	2.5
Respondents facing difficulty in paying back		
Yes	6.6	3.3
No	17.0	9.2
No applicable	76.4	87.5

Source: Survey 2009

c) Uncertainties/Threats Aspect

The discussion on the uncertainties/threats' aspect for the sustainable livelihoods at the TIMP and RIMP is segmented into two sections. The said sections are the socio-economic changes and natural disaster/disease outbreak impacts after the marine parks' gazettelement.

The socio economic changes after gazettelement of the marine parks

Based on Table 14, majority of the respondents (60-88 percent) at the RIMP and TIMP agree that their standard of living, health and assets have improved with reduced loans/borrowings after the gazettelement of the marine parks and their subsequent development into tourist destinations. Stresses with surrounding communities are also

decreasing as reported by 66 to 67 percent of the respondents from TIMP and RIMP. The influx of tourists since these two marine parks' gazettement and developed into tourist destinations also do not bother the locals (63 to 73 percent).

Nonetheless, majority of the respondents at the TIMP (74.6 percent) and RIMP (86.6 percent) are quite stress out with the hike in food prices since the marine parks' gazettement especially since the development of their islands as tourist destinations. Besides that, the locals at the TIMP are also stress by social ills (65 percent) and garbage pollution (49 percent). The RIMP's community also faces the same problems with 40.2 percent of the respondents agree and they also deny that social ills are reducing.

Table 14: Respondents' Perceptions toward socio-economic effect after gazettement (%)

	Strongly agree/ Agree		Neutral/ Impartial		Strongly Disagree/Disagree	
	TIMP	RIMP	TIMP	RIMP	TIMP	RIMP
Improved standard of living	60.4	78.2	17.9	10.1	21.7	11.4
Improved health	72.6	87.4	11.3	8.4	16.0	4.2
Increased in assets	74.5	50.5	11.3	32.5	14.1	17.1
Reduced loans/borrowings	84.0	61.5	7.5	11.1	8.5	27.4
Not stressed by surrounding community	66.1	73.8	14.2	12.7	19.8	13.6
Not disturbed by tourists	63.2	72.3	12.3	14.3	24.6	13.4
Reduced goods' prices	16.1	10.1	9.4	3.4	74.6	86.6
Improved social ills	21.7	40.2	13.2	19.7	65.0	40.2
Reduced garbage pollution	45.3	71.2	5.7	9.3	49.0	19.5

Source : Survey 2009

As a conclusion, in terms of uncertainties/threats, it is found that the locals' socio-economic standing at both the RIMP and TIMP has improved and they are free from stresses except from the aspects of increased goods' prices, garbage pollution and social ills which are very apparent at the TIMP.

Disaster/Disease Outbreak Impacts

Based on Table 15, it is found that floods still pose problem to the locals after the gazettement with 46.2 percent and 51.7 percent of the respondents at TIMP and RIMP, respectively, agree. Majority of the respondents of the RIMP report the occurrence of natural disasters such as drought (79.2 percent) and strong waves (74.2 percent). As for the TIMP, the respondents report the occurrence of drought and strong waves at only 33 percent and 20.8 percent, respectively. However, from the aspect of disease outbreak, majority of the respondents from both islands agree that there is no disease outbreak after gazettement. Thus, it can be concluded that the communities from both islands feel the pressure/stress from natural disasters especially by the RIMP's respondents.

Table 15: Occurrence of natural disasters/disease outbreak after marine parks' gazettement (%)

	TIMP		RIMP	
	Yes	No	Yes	No
Floods	46.2	53.8	51.7	46.7
Prolonged drought	33.0	67.0	79.2	19.2
Strong waves	20.8	79.2	74.2	24.2
Unexpected strong/high tide	34.9	65.1	62.5	35.8
Disease outbreak	27.4	72.6	16.7	81.7

Source: Survey 2009

V. Conclusion and Policy Implications

From the above discussion, it can be concluded that the respondents' standard of living both from the TIMP and RIMP is improving. Please refer Table 16 below.

Table 16: Summary of Research Observations on the Standard of Living and Sustainable Livelihoods at RIMP and TIMP

Indicator	Performance/Achievements	
	TIMP	RIMP
Human	Improved education level, employment and health.	Better education level, employment and health
Natural/Environment	Improved land ownership and assets	Average land ownership with no apparent reduction and improvement in other stated assets
Social	Good community's rapport	Good community's rapport
Physical	Improved public facilities even though there is no fire station	Improved infrastructure, but need further improvement, i.e. Cyber cafes and fire station
Financial	Income quite stable, high savings as compared to the RIMP's locals and free from loans/borrowings.	Low income, average savings but free from loans/borrowings.
Uncertainties/ Threats	Free from stress/pressure in terms of socio-economic changes after marine park's gazettement and safe from natural disasters	Free from stress/pressure in terms of socio-economic changes after marine park's gazettement but threatened by natural disasters

From this research, a few indicators must be looked into; among which:

- i) Financial indicator : It is observed that there are still respondents who are in the low income group and may be categorised under hardcore poverty especially the RIMP's locals
- ii) Education indicator : There is still apparent number of children who are secondary/high school dropouts
- iii) Uncertainties on goods' prices: Increase in goods' prices need to be controlled. This may be a normal phenomenon for marine parks that are developed into

tourist destinations, but it is hoped that this will not bring in negative effects to the islands' communities.

This research shows that marine parks' gazettement which bring about successful tourism industry development provides various high value employment opportunities and extensive infrastructure development. These have effectively boosts the communities' standard of living both at the TIMP and RIMP as compared to before gazettement. However, the aids by the government and responsible parties in managing the infrastructural facilities are still desired. This is because individuals are unable to provide the islands with these costly infrastructures.

In comparing the TIMP and RIMP, this research finds that the community's livelihood at the RIMP is quite backward/behind as compared to the community residing at the TIMP. This can also be observed through the researchers' casual observations. It is observed that externally, the livelihoods of the RIMP's community in terms of structure, the number /dispersion of houses and the number of members in a household are way too many as compared to TIMP. The drainage and irrigation systems at the RIMP are also in dire condition. (Please refer to photographs in Annexure A).

The differences between the TIMP and RIMP are due to the islands' communities contrasting backgrounds. At the RIMP, the community's residential area is quite remote from the areas which are being developed into tourist attractions. As for the TIMP, the tourism industry is developed near to the locals' dwellings. Moreover, most of the resorts and tourist chalets are wholly-owned by the locals themselves. This however, is not the case at the RIMP.

In order to generate greater income for the islands' locals, giving them the opportunity to be directly involved in the tourism industry during the peak season and to engage in income generating activities during the off peak season (during monsoon); are positive steps taken toward increasing the locals' income and eventually increase the sustainability of their livelihoods. Fast and definite actions must be undertaken as to ensure the locals' future livelihoods sustainability.

Moreover, the government and private sectors (in reference to the structure in the sustainable livelihoods framework), must collaborate in assuring the islands' sustainability as marine parks. The efforts are to be supported by processes or actions that can be taken such as the enforcement of laws, policies, customs and institutions. It is hoped that once the processes/actions are being carried out, they will support the management of sustainable resource utilization. This will eventually increase the locals' income, and subsequently, their standard of living. Besides that, the communities will also be free from the impacts of threats/uncertainties.

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LAMPIRAN (A)

RAJAH 2: Kg. Perhentian Kecil (RIMP)



RAJAH 3: Kawasan di TIMP

